Born Fast?

Overview

Are some people born to be faster? New research suggests the answer might be yes. Scientists have found that some individuals may have a biological advantage when it comes to explosive speed and power.

Although this isn't my area of expertise, I find it fascinating. It just feels like natural advantages exist; the idea that everyone starts as a "blank slate" never felt quite right. I know people who, no matter how much I train, always seem to be quicker. And now, science is starting to explain why.

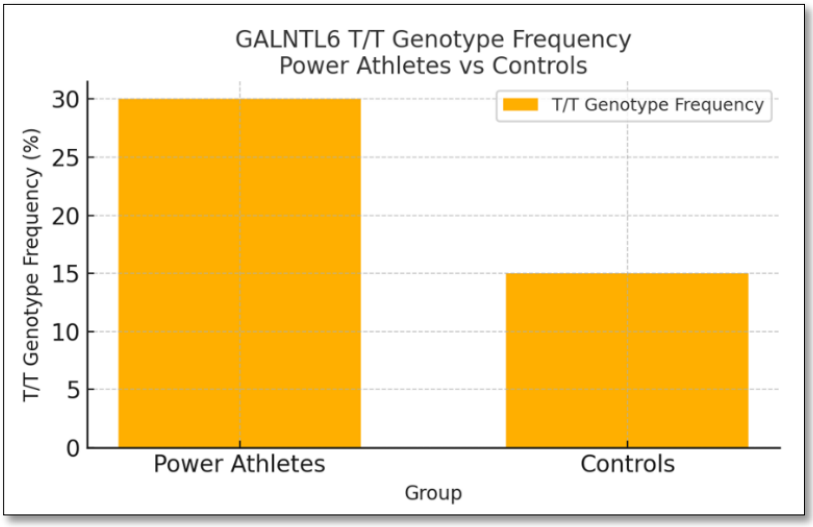
Key Findings & Insights

A 2024 study that pulled together lots of existing research (called a meta-analysis) found that top sprinters and power athletes are much more likely to have a special version of a gene called ACTN3.
This version, known as the R allele, helps the body produce a protein called α-actinin-3. This protein plays a key role in making fast, strong muscle movements — the kind needed for sprinting, jumping, and lifting. Without it, muscles tend to be slower and more endurance-focused.

ACTN3 Genotype Frequencies in Power Athletes vs Controls

Group	RR (%)	RX (%)	XX (%)
Power Athletes	40	50	10
Controls	30	50	20

Interestingly, about 1 in 5 people worldwide naturally don't make this protein (this is called having the XX genotype). These individuals are much less common among elite sprinters.
It feels like part of the reason why some people seem naturally slower while others seem to have that extra gear — right from the start.



Another large genetic study (called a genome-wide association study, or GWAS) found that a gene called GALNT13 is linked to having more fast-twitch muscle fibres. These are the muscle fibres specialised for speed and powerful bursts of movement, compared to slow-twitch fibres, which are better for endurance activities like long-distance running.

Surprisingly, the GALNT13 gene is also active in the brain. The researchers suggested that sprinting ability might not just be about strong muscles; it could also involve faster brain-muscle coordination.

But it's not just about one or two genes.

A 2025 meta-analysis looked even wider and found other important genetic differences, including:
GALNTL6: A version called the T/T genotype was linked to improved performance in short, intense activities (scientists call this anaerobic ability; meaning using short bursts of energy without relying heavily on oxygen).
MCT1: Variants in this gene affect how well muscles deal with lactic acid, which builds up when you work really hard and makes your muscles burn.
NOS3: Changes here help improve blood flow and oxygen delivery to muscles; both critical for peak performance.

These findings show that elite speed likely comes from a whole network of tiny genetic advantages working together; not from a single "sprint gene" switch being turned on.

Conclusion

Genetics may offer a head start, but it doesn't guarantee greatness. Sprinting success also depends on training, coaching, opportunity, mindset, and even avoiding injury. Someone could have the "ideal" genetic makeup for sprinting but never reach their potential without hard work. Think of it like this: genes might build the car, but training, effort, and environment still drive it. It's fascinating to see how science is uncovering the hidden threads that shape human ability. Some people are clearly born with genetic advantages for speed and power, but what they do with that potential still matters hugely.

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